Amendments to the Claims

1. (currently amended):

A router for routing a packet belonging to a virtual private network (VPN) and having a label that includes a virtual private network identifier (VPN-ID) according to the Multiprotocol Label Switching (MPLS) standard, the router comprising:

    a) ~~a first port for receiving a packet having a first label, a header and a payload;~~

    a~~b~~) a first table associated with the VPN, from among one or more separate tables, each table associated with a different VPN ~~associated with different labels, associated with the first label~~; and

    b~~c~~) a processor for ~~processing~~ routing the packet based on an association between the VPN-ID and ~~in accordance with~~ the first table.

2. (original):

The router as recited by claim 1 wherein in the table is a route table.

3. (original):

The router as recited by claim 1 wherein the table is a forwarding table.

4. (cancelled)

5. (currently amended):

    The router as recited by claim 1 further having a ~~second~~ port for transmitting said packet.

6. (cancelled)

7. (currently amended):

    The router as recited by claim 1 wherein the label ~~comprising~~ ~~information identifying a virtual private network and~~ further includes a forwarding label.

8. (currently amended):

    A method of routing <u>a packet</u> in a network, <u>the packet belonging to a virtual private network (VPN) and having a label that includes a virtual private network identifier (VPN-ID) according to the Multiprotocol Label Switching (MPLS) standard, the method</u> comprising:

    a) maintaining a first table corresponding to a first virtual private network;

    b) maintaining a second table corresponding to a second virtual private network; and

    c) routing ~~a~~ <u>the</u> packet based on ~~a pre-existing~~<u>an</u> association ~~with~~ <u>between the VPN-ID and one of</u> the first table ~~or~~ <u>and</u> the second table.

9. (original):

> The method as recited by claim 8 wherein the first table and the second table are route tables.

10. (previously amended):

> The method as recited by claim 8 wherein the first table and the second table are forwarding tables.

11. (currently amended):

> The method as recited by claim ~~9~~ 8 further comprising ~~the step of~~ maintaining a forwarding table indexable by the VPN-ID ~~a virtual private network identifier~~.

12.-13. (cancelled)

14. (currently amended):

> The method as recited by claim 8 wherein the label ~~comprises information identifying a virtual private network and~~ further includes a forwarding label.

15. (cancelled)

16. (currently amended):

> A method of routing a packet in a network, the packet belonging to a virtual private network (VPN) and having a label that includes a virtual private network identifier (VPN-ID) according to the

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Multiprotocol Label Switching (MPLS) standard, the method comprising:

 a) maintaining a first forwarding table corresponding to a first virtual private network;

 b) maintaining a second forwarding table corresponding to a second virtual private network; and

 ~~c) receiving a packet having a label, a header and a payload; and~~

 c) routing ~~a~~ the packet based on ~~a pre-existing~~ an association ~~with~~ between the VPN-ID and one of the first forwarding table ~~or~~ and the second forwarding table.

17.-18. (cancelled)

19. (currently amended):

 The method as recited by claim 16 wherein the label ~~comprises information identifying a virtual private network and~~ further includes a forwarding label.

20. (cancelled)

21. (currently amended):

 A network comprising:

 a) a first edge router configured to ~~receive~~ route a packet ~~having a header and to transmit into~~ through a wide area network cloud, the packet belonging to a virtual private network (VPN) and having a label that includes a virtual

private network identifier (VPN-ID) according to the
Multiprotocol Label Switching (MPLS) standard a modified
packet having a label and the header;

b) a backbone router configured to receive the modified packet
and route the modified packet based on a route table
associated solely with the VPN-ID label, from among one or
more separate route tables, each table associated with a
different VPN labels; and

c) a second edge router configured to receive the modified
packet.

22. (cancelled)

23. (currently amended):

The network as recited by claim 21 wherein the label comprises
information identifying a virtual private network and further includes a
forwarding label.

24. (original):

The network as recited by claim 21 wherein the backbone router
comprises a second route table.

25. (currently amended):

The network as recited by claim 21 wherein the modified packet
further includes, a second label identifying a forwarding table
corresponding to the virtual private network, the forwarding table
including a portion of the route table.

26. (currently amended):

    A method of routing a packet <u>belonging to a virtual private network</u> <u>(VPN) and having a label that includes a virtual private network</u> <u>identifier (VPN-ID) according to the Multiprotocol Label Switching</u> <u>(MPLS) standard, the method</u> comprising:

    a) ~~identifying, by a label, a~~ <u>receiving the</u> packet ~~including the~~ ~~label, a header and a payload destined for a virtual private~~ ~~network (VPN)~~;

    b) identifying, ~~from the label,~~ a routing table associated with the VPN from among multiple separate routing tables associated with different <u>VPNs</u> ~~labels~~; and

    c) facilitating routing of the packet to the VPN.

27. (currently amended):

    The method of claim 26, wherein the <u>VPN-ID is contained in a first</u> <u>label in the header</u> ~~label includes a virtual private network identifier~~.

28. (previously added):

    The method of claim 26, wherein the routing of the packet is based on information in the header.

29. (previously added):

    The method of claim ~~28~~ <u>27</u> further comprising:

        Identifying, from a second label, a forwarding table corresponding to the VPN, the forwarding table including a portion of the routing table.

30. (previously added):

The method of claim 29 further comprising:

identifying, from the forwarding table, label switching

information for routing the packet to the VPN.

31. (previously added):

The method of claim 30, wherein routing of the packet is based on

information in the forwarding table.

32. (previously added):

The method of claim 26 wherein the label includes a forwarding

label corresponding to a forwarding table.